

# THE ZOOLOGIST

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## BIRD LIFE IN ARCTIC NORWAY.\*

By JOHN CORDEAUX.

ORNITHOLOGISTS will be grateful to Professor Collett, of Christiania, and his translator, Mr. Alfred Heneage Cocks, for a useful and pleasantly-written pamphlet on 'Bird Life in Arctic Norway,' the observations recorded being the results of wanderings within the Arctic circle made by the author during seven summers.

In these days Norway annually attracts hundreds of tourists, sportsmen, and naturalists of all nationalities. Year after year the stream of those who set their faces northward increases, and we need not be surprised at this when we consider the marvellous attractions of a part of Europe the scenery of which surpasses anything that can be found within the same easy distance of our shores. In a few hours, and with little exertion, we find ourselves transported as if by magic from the conventionalities of civilization and the cares of business, into a primitive world of the grandest and most diversified features—a land of surpassing beauty, with snow-clad mountains and shining glaciers, deep fjords and sounds, matchless waterfalls, exquisite transparent lakes in deeply sheltered valleys, belted with an almost southern vegetation; above these dense pine forests, and, higher still, mountain wastes of immense extent with a sparse vegetation, beyond the birch-zone, of lichens and dwarf shrubs and grey

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\* 'Bird Life in Arctic Norway'; a popular brochure, by Robert Collett, Professor of Zoology in the University of Christiania; translated by Alfred Heneage Cocks, M.A., F.Z.S. R. H. Porter, London.



willow, studded with lakes and bogs where the migrants from the south come to nest and hatch out their young. In this notice, however, we have to deal solely with that part of Norway within the Arctic circle. Some knowledge of the birds which resort thither, and of the exquisite beauty of the fauna and flora, cannot fail largely to enhance the interest and pleasure of the traveller, and it is particularly on these grounds that this little work should be in the hands of all who intend to visit the land of the midnight sun.

Prof. Collett divides Norway into three natural zones :—

- I. The coast district and island belt up to the North Cape.
- II. The deep fjords of the Arctic Ocean, and river basins in East Finmark.
- III. The interior plateaux.

The further north we travel on the Norwegian coast we find that, although the species decrease, the number of individual birds increase, and nowhere perhaps is bird life more richly displayed than on the furthest shores of Europe facing the Arctic Ocean, in—

“ A land that is lonelier than ruin,  
A sea that is stranger than death.”

One of the most remarkable of the many bird-rocks is the Sværholtubb, a little to the east of North Cape; it is perhaps the largest and most densely populated station in the world, and is almost exclusively occupied by the Kittiwake. Here are concentrated millions of birds on cliff-walls about 900 feet in height. Prof. Collett calculates that for every breeding pair (with entirely white head) there are eight to ten young individuals, distinguished by the black ring on the nape, which are not breeding. This enormous colony of Kittiwakes appear to subsist chiefly on small crustaceans, enormous masses of which are moved to and fro by the currents and form the food of Rudolph's Whale and the gigantic Sibbald's Whale.

It is remarkable that several pelagic species found in the more open parts of the Atlantic and the Faroes do not nest anywhere along the Norwegian coast-line, such as the Storm and Fork-tailed Petrels, the Gannet, and the Manx and Greater Shearwater and Fulmar; these, although occurring more or less off the coast, do not breed.

On scattered lands within the mystic circle of the Arctic Seas

nest incredible numbers of some species, as the Spitsbergen and Brünnich's Guillemots, Little Auk, the Glaucous, Iceland, and Ivory Gulls, and others which never breed so far south as Norway. The Razorbill does not breed beyond the northern part of Norway, and it is probable that its large and extinct relative the Great Auk never occurred, except accidentally, north of the Arctic circle. It was on Hornö, near Vardo, the most easterly bird-rock of Finmark, that in 1848 a reputed Great Auk was shot by Herr L. Brodtkorb (Mitth. Orn. Ver. Wien. 1884). Professor Collett still gives credence to this story, but Professor Newton, in his latest contribution to the history of this species ('Dictionary of Birds,' art. Gare-fowl, p. 305), declines to accept it, the whole matter, in his opinion, having been thoroughly sifted by Wolley forty years ago.

An interesting question is raised by the author as to where all these enormous hosts of high Arctic birds pass the winter, some of them only occurring sparingly off the Norwegian coast, and the Spitsbergen Guillemot, *Uria mandti*, being unknown on any European coast.

The young of the Razorbill, ushered into the world on a bare wind-swept ledge exposed to every storm, to sleet, snow, and rain, is almost entirely naked, but the young Puffin, born in a deep and sheltered hole, is a living ball of down, the apparent unfitness of this arrangement is one of those points in the economy of nature difficult to understand; for it does not appear, in this case at least, that the wind is tempered to the shorn lamb. Illustrations of the young of these, also of the Kittiwake, are given.

On the belt of islands which fringe the coast the most characteristic birds are Oystercatchers, Ringed Plovers, Turnstones, and various Gulls and Terns. On the larger islands, or egg-holms, nest great numbers of Eiders, the Grey-lag Goose, the Great Black-backed Gull, and Arctic Skua. On an island in Lofoten have bred for years a pair of Bernacle Geese, a bird which nests nowhere else in Europe, nor does the Brent Goose, but in the spring immense numbers of the latter come on a fixed day in May to the Naze, and more follow; then in rows as straight as a line they sweep northward along the whole coast till they fetch the outermost north-westerly Skerries, and from thence "northward" is still the cry to Spitsbergen, Nova Zembla, and further still into the infinite unknown beyond.

There is no better station than Tromsö for observing Arctic bird-life. Everywhere may be heard the harsh chatter of Fieldfares, nesting in colonies, but never more than one nest on each tree, with generally a pair or two of Redwings in each colony. Many of the characteristic birds of the north are to be seen, as *Motacilla viridis*, Arctic Bluethroat, Red-throated Pipit, Brambling, Mealy Redpoll, *Phylloscopus borealis*, and Sedge Warbler (*Acrocephalus phragmitis*), besides numerous waders and ducks.

Many of our more common birds reach Tromsö, and their highest northern range is about lat. 70° N., where they sing and nest in the dense birch-woods and willow-scrub which clothe the luxuriant basins which debouch on the sides of the Arctic fjords; such are the Song Thrush, Garden Warbler, Blackcap, Redstart, the two Flycatchers, Tree and Meadow Pipit, Ring Ouzel, Wheat-ear, White Wagtail, Hedgesparrow, Willow Wren, and Cuckoo, with others. The Chiffchaff hardly goes further than just beyond the Arctic circle. To these valley bottoms also come innumerable Martins (*Chelidon urbica*), breeding in colonies, several hundred pairs together, on the precipitous mountain walls, under shelves and small projections of the rock, attaching their nests just as they do on the cliffs at Flamborough. The Sand Martin also goes as far north as it can find nesting-places, and will drive its horizontal tunnels into the peat-roofs of houses, exactly as we have seen their holes driven into the perpendicular sides of the deep peat drains cut on Thorne waste in Yorkshire. Space will not allow of following Prof. Collett in his charming pictures of the nesting haunts of such well-known Arctic birds as the Snow Bunting, Shore Lark, and Lapland Bunting, the former of these feeding its young especially on the large crane-fly (*Tipula*).

The author thinks the song of the small birds is not quite the same, some of the strains being different and unknown in the south, and this variation he attributes to the immensity of the areas, and to the habitable spots being so few and far between, so that each male sings only to its mate, and competition can never arise, each song being independent of the influence of others. Those who are interested in this subject cannot do better than consult the Encyclopædia Britannica, art. Birds, "song."

But of all the bird-voices in these desolate wastes, none is so conspicuous as the call of the male Willow Grouse, which exactly resembles that of the Red Grouse of Britain, from



which it differs in no other respects than in the possession of permanent white remiges and the assumption of a white garb in winter. The Ptarmigan of Scandinavia is identical with our Scotch bird; its place is taken in Greenland and Iceland by a closely-allied form, the Rock Ptarmigan (*Lagopus rupestris*). The Spitsbergen Ptarmigan (*L. hemileucurus*) is now supposed to be a Willow Grouse, in which case it is suggestive of a former much greater extension northward of the continent of Europe. Perhaps the most interesting to ornithologists amongst the smaller birds frequenting the birch-woods is the Siberian Willow Wren (*Phylloscopus borealis*), a species which the author says was unknown west of Archangel before 1876. This little bird has a monotonous note of only one syllable, "zi-zi-zi," quickly repeated, with occasional short pauses of half-a-minute. The nest, which is domed, but without feathers or hair, is placed at the root of a tree in the densest part of the forest, and well concealed by wild flowers. There is a nest with the young sitting side by side on a branch in the Museum at Christiania, the only young of this species hitherto exhibited. The bird has occurred in Heligoland, and probably once on our east coast at Flamborough on Nov. 21st, 1893,\* just after the great gale from the north and north-east. Its winter home is in China and India, and in the Archipelago, and as it does not appear to have been recognised on migration in the southern parts of Norway, it probably follows the eastern route across Russia.

The Willow Warbler (*P. trochilus*) breeds as far north as the Cape, and its nest is lined with a handful of the white winter-feathers of the Willow Grouse.

On desolate holms along the coast, and within the Arctic fjords, breed many species of *Tringa*, and on the driest spots, where grows a brown carpet of *Empetrum nigrum*, the Arctic or Richardson's Skua. Sometimes the two parents differ in one having a white and the other a black belly, or both may be black-or white-bellied. In the down, the young are all black, but later become variegated like the parents. Some islands are entirely occupied by the Arctic Terns. Buffon's Skua inhabits the

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\* Since I have had an opportunity of inspecting Mr. Dresser's skins of the *Phylloscopi*, I am convinced that a Leaf-warbler watched by me at this date was *Phylloscopus borealis*. (See 'The Naturalist,' 1894, p. 40.)

mountain plateaux, and shows no variation in plumage. The Pomatorhine or (as Prof. Collett would call it) the Broad-tailed Skua nests nowhere in Europe but in the Eastern Siberian tundras. In the high stony uplands the reindeer-moss grows most luxuriantly, the district is studded with innumerable lakes and extensive morasses, covered with dwarf birch and willow scrub. These are the breeding quarters of various species of ducks. Some Whoopers, the Lesser White-fronted Goose, no bigger than a Mallard, and the Bean Goose (*Anser segetum*), two skins of which, lately added to the Copenhagen Museum, were obtained in 1891 by the Danish Expedition in Eastern Greenland in latitude 65° N.

In the more stony tracts, amongst silver-grey lichen, saxifrages, and other dwarf plants, nests the Dotterel (*Eudromias morinellus*), here completely alpine in its habits, and rarely nesting below the highest tree-line. Here, too, is found *Lanius excubitor*, a species subject to variation in the wing-markings, but which Prof. Collett has clearly shown must be considered one and the same; and breeding indiscriminately amongst themselves.

In great Lemming years, when these little rodents increase beyond all calculation, the uplands swarm with large predacious birds, especially Rough-legged Buzzards, Short-eared Owls, Snowy Owls, and from the richness and abundance of their prey, these, too, become unusually and abundantly prolific, the Snowy Owl having as many as ten eggs in a nest. It will be remembered that exactly the same tendency to unusual fecundity has often been recorded before, and especially was observed in connection with the Short-eared Owls during the recent plague of Field Voles in Southern Scotland (see 'Zoologist,' 1893, p. 131).

Of late years the Arctic avi-fauna has shown a decided tendency to take up ground to the west. The Shore Lark—which in the last thirty years has become so common a migrant across Heligoland, and more recently on the east coast of England—is a case in point, so also probably the Siberian Willow Wren. There are, however, species found in Northern Russia which, so far, have not occurred in Finmark; such are the Rustic and the Little Buntings, *Motacilla citreola*, *Anthus gustavi*, and the Terek Sandpiper (*Terekia cinerea*), Bewick's Swan, the Smew, and the larger White-fronted Goose, the former two being north-easterly forms, have not been found nesting in Norway.

The lovely Steller's Eider does not breed nearer than the Murram coast, the north-west corner of Russia between Norway and the White Sea, but it occurs in large numbers in the Varanger Fjord in winter. We can recollect the time when this very rare wanderer to the British coasts, then better known as Steller's Western Duck, was, in our imagination, scarcely second in value and rarity to the Red-breasted Goose, and even the Great Auk itself. Now, thanks to Arctic exploration, we know much more of its haunts and habits. An idea of the immense number to be found east of the Taimyr peninsula and in Bering's Straits may be gathered from the observation of Mr. E. W. Nelson, the naturalist who accompanied the United States Revenue Cutter 'Corwin' in 1881, and also from more recent narratives of exploration in those high northern latitudes. In the cruise of the 'Corwin,' Steller's Eider is said to be excessively common on the north coast of Siberia and about Cape Wankarem in August, in company with an equal number of King Eiders and a few Pacific Eiders. The narrative states that "soon after the expedition came to anchor off the native village the body of birds arose from the estuary a mile or two beyond, and came streaming out in a flock which appeared endless; it was fully three to four miles in length, and considering the species which made up this gathering of birds, was enough to make an enthusiastic ornithologist wild with a desire to possess some of the beautiful specimens which were filing by within gunshot of the vessel."

It is interesting to know what are the small European birds which succeed in braving the winter in the birch-woods of Tromsö; these are *Parus borealis*, the Lesser-spotted and the Three-toed Woodpeckers, some Yellowhammers, Tree Sparrows, Bullfinches, Mealy Redpolls, and Golden-crested Wrens, a solitary Tree Creeper, and rarely the Long-tailed Titmouse; and amongst the larger birds the Siberian Jay, one of the most amusing and entertaining birds in the northern forests. The Common Sparrow has succeeded in reaching Oxford, just south of Hammerfest, but it is to be hoped will find the winter too cold to stay in those high latitudes; this has been the case in Greenland, where, from the latest accounts, the Sparrow seems, from the damp and cold climate, unable to hold its own.

Some resident northern birds, as the Magpie, Lesser Spotted Woodpecker, and the Northern Marsh Tit, and some others, show

very considerable climatic variation from southern forms in the direction of having more white in the plumage, but it is by no means clear that these changes are due to Protective Selection. In the Willow Grouse and Mealy Redpolls this divergence from the original type is much more marked and established.

In concluding this notice of Professor Collett's interesting pamphlet, it is to be observed that much of the most important and scientific part of the original has been omitted by the translator. At the same time the English edition contains not only much original matter—the result of personal observation—but also, in an Appendix (added at the suggestion of Mr. Selater), a most useful list of the birds which breed in Norway, and of the non-breeding feathered visitors.

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#### NOTES ON THE SEAL AND WHALE FISHERY OF 1893.

BY THOMAS SOUTHWELL, F.Z.S.

THE uncertainty of all connected with the Seal and Whale Fishery was never more manifest than in the season of 1893, which has been the worst known for many years for the vessels leaving the Newfoundland ports, the produce being little more than one-third that of the two preceding years.

In order to understand the reason of this failure, it is necessary to state that on the east coast of Newfoundland there are believed to be always two more patches of breeding Harp Seals; one is known as the Southern and the other as the Northern Patch, these two nurseries being situated at a distance from each other of a hundred miles, sometimes much more, sometimes rather less. The young seals on the Southern Patch are, I am informed, born in the last days of February, or the first days of March, those on the more northern ice between the 10th and the 15th of March. The former, too, are larger than the latter, their pelts, with fat attached, weighing from 50 to 60 lbs., whereas those found on the northern patch do not exceed from 40 to 45 lbs. at the same age.

Owing to the great destruction of old seals in the season of 1892, the steamers were not allowed to leave port till two days



later than usual, namely on the 12th of March,\* and killing was prohibited before the 14th; no second trip was allowed, and the season closed on the 20th April. It happened in 1893 that the seals were very far south and farther than usual from the shore, and the 'Esquimaux' was the only vessel which cleared from St. Johns, eleven leaving Greenspond, 150 miles further north, six others sailing from Seldom-come-by, further north still in Fogo Island, and one even so far to the north as St. Anthony; it thus happened that all the vessels practically missed the southern pack, being to the north of them, and when they should have fallen in with the northern pack, owing to the gales of wind from the W.N.W., the ice had been so driven off the shore and broken up by the sea that it was impossible for the men to approach the scattered seals on foot over the loose ice, which, on the other hand, was not sufficiently open to admit of their pulling to them in boats. The sea, too, which amongst the pack-ice is quite smooth, amongst these loose streams was very rough, and in addition the crews suffered greatly from frost. Had all the vessels cleared from St. Johns, as was formerly the case, and started on their voyage two days earlier, it seems highly improbable that the breeding seals would have been missed. The same adverse conditions of the ice which so prejudicially affected the pursuit of the Harp Seals rendered the fishery for the Hooded Seals equally unproductive, and the three vessels which fished to the west of Newfoundland in the Gulf of St. Lawrence did not average better than those to the east.

The twenty-two steamers engaged in the Newfoundland fishery make a return of 129,060 seals, old and young, all the vessels participating to a greater or less extent, the largest number, 12,770, being secured by the 'Eagle,' the 'Nimrod' following with 12,182, but these were the only two vessels whose catch ran into five figures, the average of the whole being 5866, which number was exceeded by eleven of the vessels, whereas the remaining eleven were below it. This compares very badly with

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\* Sailing vessels may sail for the Seal Fishery on the 1st March, and remain out as long as the Captain thinks fit, taking seals whenever he has the opportunity. The custom in sailing vessels is for the crew to get one-half of the catch for their share; in the steamers they only receive one-third.

a general average of 17,486 in the season of 1892. The 'Eagle,' of St. Johns, was subsequently lost in Lancaster Sound, where on the 27th July, she was nipped in the ice, and her crew, after bravely sticking to their rudderless and sinking ship, made Dexterity Bay on the 1st Sept., where they and the cargo were taken on board the 'Aurora' and the 'Esquimaux,' and the damaged ship was then deserted. She had on board at the time the produce of two whales and a "sucker," amounting to about a ton of bone and twenty-five tons of oil, in addition to seals, walruses, &c.\*

The Greenland and Davis Straits sealing in the past season was very unimportant, and I am told that not more than 40,000 seals in all were killed, only 325 falling to the share of the Scotch vessels; of these 235 were brought home by the 'Perseverance,' which had wintered in Repulse Bay, and the 'Eclipse' and 'Nova Zembla,' from Davis Straits, killed forty-two and forty-eight respectively; four of the vessels were away at the Antarctic fishing, to which I shall refer further on. The total result, therefore, of the Northern Seal Fishery in which six Scotch vessels took part, was only 17,256 old and young seals, producing 204 tons of oil, representing at £19 per ton £3876, and the skins at an average, say, of 7s. each, a further sum of £6040, a total of £9915, as compared with a like valuation of £35,152 in the previous season.

Turning to the Davis Straits whale fishery, the result commercially is much more satisfactory. There were four Dundee vessels present, all of which secured fair cargoes, the 'Aurora' taking the lead with nine whales and two suckers; the 'Eclipse' following with eight all very fair fish, and the 'Esquimaux' and 'Nova Zembla' with four each.

The weather was very bad in the early part of the season, and the 'Eclipse' was the only successful vessel at the east fishery ground, killing two whales on the 13th and 16th of May, but she was detained in Melville Bay by heavy ice and stormy weather until early in July. Immediately upon reaching the west side of the Strait she fell in with whales, and after losing one on the

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\* In addition to those already mentioned, 21,500 seals were brought into St. Johns by local sailing vessels which do not come within our province.

5th July, killed on the 6th, 7th, and 9th, one on each day, and three others were killed early in September. In Pond's Bay Capt. Milne varied the pursuit by a little Reindeer-shooting; of these he secured twenty-seven, with occasional seals and walrus.

The 'Aurora' was very fortunate in crossing Melville Bay, and found the ice in Lancaster Sound in good condition. Her Captain lost his first whale, on June 26th, but next day killed two old females and their two "suckers." Again, on the 2nd July, he lost a whale, but on the following day killed a third female and sucker, and on the 9th, 10th, 11th, and 12th a whale was killed each day; one of these was accompanied by a sucker, which escaped, but was subsequently killed by the 'Eagle.'

The summer fishing being now over, the 'Aurora' steamed along the west shore of Lancaster Sound to Clyde River and Bute Island looking for whales, but without success until Sept. 27th, when two whales were sighted in Coutts' Inlet, and both killed; during the next fortnight many other whales were seen, but bad weather rendered their pursuit impossible, and it was not till Oct. 8th that her thirteenth and last whale was killed.

The 'Nova Zembla' was not successful till Sept. 17th, when she killed two very fine whales north of Coutts' Inlet, one yielding 25 cwt. of bone. Two others were subsequently killed and another lost. Amongst Capt. Guy's miscellaneous cargo were sixteen bears and four walruses.

The 'Esquimaux,' like the 'Nova Zembla,' was very late in finding the whales, but eventually killed one on Sept. 9th, two others early in October, and ultimately added a fourth, making her total catch four Black Whales, one Finner, thirty-nine Walruses, twenty-eight Seals, and five Bears.

The season was thus a very favourable one, notwithstanding spells of bad weather, and whales seem to have been plentiful. The result must be very cheering to those concerned, after the repeated bad seasons which have been experienced. It is much to be regretted, although inevitable, that the sucking calves, which are of small value, four of which were killed, should fall victims with their mothers, instead of surviving to grow into value; the death of the parent, however, seals the doom of the offspring, and it can hardly be expected that prizes so rich should be spared when opportunity offers for their capture. It is very satisfactory to hear of this evidence of the natural increase of the

whales in the Straits, the occurrence of suckers in the Greenland Seas being extremely rare.

Our friend Capt. David Gray could not content himself at home, and the 'Eclipse,' of whose success I have already spoken, having been disposed of, he took command of the 'Windward,' which was the only Scottish vessel in the Greenland Seas. The only whales seen by Capt. Gray were met with on May 6th, in lat.  $78^{\circ}46'$  N.,  $22'$  East; of two seen at the same time one was killed, which yielded 19 tons of oil, and 19 cwt. of bone; the other escaped. The ice was found to be too far to the westward, so as to leave no cover on the Spitzbergen feeding banks, and after a fruitless search, he left for the south fishing-ground early in June, where no better success awaited him; finally, at the end of July, he made for home, weary and disappointed. The absence of the whales from the Greenland Seas in the past season is very remarkable, and a great contrast to the abundance which showed themselves in Davis Straits.

The total produce of the whale fishery was 33 Whales, 32 White Wales, and 75 Walrus; these yielded 389 tons of oil and 20 tons 16 cwt. of bone; the oil may be valued at £21 per ton, but as no bone has yet come into the British market the price is very uncertain; it may be taken, however, at about £1600 per ton, the price at which it is now selling in America (a very serious reduction upon the previous season), and at that price the total produce of bone and oil would represent a sum of £41,449, against a like valuation of £19,666 in the previous season.

The Dundee expedition to the Antarctic Seas, to which I referred in my last report, has proved commercially a great disappointment, and, so far as I can learn, of very little scientific importance. A large number of seals were killed, but, owing to the low price of produce, not sufficient to pay the expenses of the voyage, and no species of Right Whale was met with. The general professional opinion appears to be that the vessels started too late, and they were still further delayed by heavy weather before getting fairly on the voyage. The experiment, so far as Dundee is concerned, will not be repeated at present, but I understand that the Norwegian whaler 'Jason' has made a second trip southward, and probably, owing to the more economical management of these vessels, may find it to her advantage. The southern



seals are not so gregarious in their habits, and therefore more scattered, and not to be cleared off in the same wholesale manner as at the Newfoundland and Greenland young sealing; this is in their favour, but if they are pursued with the same relentless avidity as in the north, and do not speedily learn to shun their new enemy, their days are certainly numbered. A member of the late expedition writes to 'The Times' as follows:—

"The present generation [of Seals] has never seen man, and they survey him open-mouthed and fearful, during which process they are laid low with club and bullet. Sometimes they are so lazy with sleep that a man may dig them in the side with the muzzle of his gun, and, wondering what is disturbing their slumbers, they raise their head, which quickly falls pierced with a bullet. There may be only one seal on a piece of ice, which is usually the case with the larger kind; but the smaller kinds lie in half-dozens and tens, and as many as forty-seven were seen on one piece. Seldom do they escape—one cartridge means one seal."

Of the species of the seals met with I have no certain information; I have seen nothing definite published, and no material seems to have reached our National Museums; but in a single paragraph devoted to this subject in a paper read by Dr. W. C. Donald before the Scottish Geographical Society in Edinburgh in January last, the species are said to be four in number, and are probably identical with those observed by Ross and previous voyagers in the same latitudes—namely, the Leopard Seal, *Stenorhynchus leptonyx* (de Blainville); the Crab-eating Seal, *Lobodon carcinophaga* (Gray); Weddell's Seal, *Lyptonychotes weddelli* (Lesson); and the rare Ross's Seal, *Ommatophoca rossi* (Gray); but I hear that Prof. D'Arcy Thompson, of Dundee, has had the zoological results of the voyage submitted to him, and we shall probably be better informed in due time. The only Cetaceans seen were a single individual of a species of *Megaptera*, which was harpooned and lost, a large number of *Balenoptera*, a species of "Grampus," a "Bottlenose," and several schools of what was "possibly a species of *Globicephalus*." Of birds, twenty species in all were obtained.

The vessels left the Falkland Islands at dates varying from the 8th to the 11th December, and were no more heard of till the 'Polar Star' touched at Stanley Harbour on the 17th February, the interval having been spent in cruising in the neighbourhood

of the South Shetland Islands, reaching as far south as lat. 67°, and encountering great diversity of weather.

The commercial results of the voyage were 4000 seals taken by the 'Active,' 5226 by the 'Balæna,' 3572 by the 'Diana,' and 1908 by the 'Polar Star,' or a total of 14,706. The Norwegian ship 'Jason' is also stated to have returned with some 5000 seals; no *Monachus*, nor *Otariæ* were met with, and all the seals are said to have been in poor condition.

I have to express my thanks to Mr. David Bruce and Mr. R. Kinnes, of Dundee; Capt. David Gray, of Peterhead; Mr. Michael Thorburn, of St. Johns; and Mr. Walter Thorburn, of Greenock, for their kindness in supplying me with information from their respective ports.

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### THE MARTEN IN IRELAND.

By G. E. H. BARRETT-HAMILTON.

I HAVE been much interested in the article on "The Marten in Ireland" which appeared in the last number of 'The Zoologist' (pp. 100—107), for I have been for some time collecting notes on the distribution and life-history of this animal in Ireland, and indeed of all our native Irish mammals. I had at first contemplated the publication of a list of localities in Ireland where the Marten has been found of late years, but an accumulation of notes has convinced me that this animal is much more common in the wooded parts of Ireland than is generally supposed, and consequently that such an article would be as unnecessary as one on the distribution in Ireland of such common Irish mammals as the Otter or Badger. I think the statement (p. 101) that "at one time, in all probability, the Marten must have been generally distributed in Ireland, but as civilization has extended inland from the east and south, and as woods have been cut down, and the country opened up by railways, drainage, and cultivation, so has this animal been gradually driven into the wilder portions of the north and west," needs considerable modification. No doubt the Marten is *now* driven out from the east and south, but it is only of late years that this has been the case, and I contend that even in the more highly cultivated parts of the eastern counties of Ireland it would be an impossibility to name a county in which

the animal has not occurred recently. Taking the eastern counties from north to south, the Editor's own notes establish its occurrence more than once in Antrim in 1893, while in Down, again (quoting from the same article), "amidst the wild and broken ground of the Mourne Mountains . . . the Marten will probably for some time yet to come defy the efforts of its would-be exterminators." From Louth and Meath I have no records by me, but there is little doubt that stragglers are still occasionally found in those counties, since they lie quite close to more favoured counties. From the small county of Dublin there is no recent record, but the outer parts of the county are not so far from the woods of Wicklow, which are still one of the strongholds of the Marten; and even in Wexford, "the model county" of Ireland, its occurrence has been noted as late as June, 1892 (p. 104), a fact which is not at all surprising when we consider that Wexford comes next to Kilkenny, a county in some parts of which the Marten is still plentiful.

I regret very much that I have not got by me all the notes which I have been able to collect on the distribution of the Marten in Ireland, but I propose to give such of them as I have, and which are not included in the last number of 'The Zoologist,' under the headings of their respective counties and in the order there adopted. I think it is a pity that the Editor should have arranged his information under "provinces." It would have been surely better to have followed some definite order, such as that given in Mr. A. G. More's 'Cybele Hibernica,' and to have disregarded the provinces altogether.

#### ULSTER.

Co. DONEGAL.—Mr. W. A. Hamilton, of Coolmore, Ballyshannon, writes (under date of Feb. 18th, 1892), "The Marten is, I should say, extinct here, but used to exist some twenty years ago." Mr. A. R. Wallace told me (in 1892) that he saw a Marten, about ten years previously, on the carriage-drive at Loughesk, near Donegal (*vide infra*, the Rev. C. Irvine's notes for Co. Fermanagh).

Co. ANTRIM.—The sex and length of the Portglenore specimen were stated to be "male: 2 feet 9 inches," by a correspondent who wrote in 'Land and Water' (April 22nd, 1893), under the signature "J. A. B."

Co. TYRONE.—See Co. Fermanagh.

Co. FERMANAGH.—The Rev. C. Irvine wrote (Feb. 3rd, 1890), "known about 1880 to exist at Kellindeas and other places along Lough Erne, especially at Castle Caldwell, at the north end of the lough." He added that the "Marten was formerly common enough in certain places. Last actual occurrence July, 1869."

#### LEINSTER.

Co. MEATH.—The Marten trapped by Mr. Longworth Dawes (*vide infra*, under King's Co.) was trapped just over the border of this county.

Co. WESTMEATH.—Capt. J. J. Dunne informs me that he has met with the Marten in this county, but gives no instance. Mr. R. B. Coffy, of Newcastle, near Killucan, has sent me a description of an animal trapped there about 1885 by a rabbit-catcher, as to which I have no doubt, from his description, that it was a Marten.

Co. KILDARE.—Capt. J. J. Dunne informs me that he has met with the Marten in this county.

Co. DUBLIN.—A good many years ago two were trapped in the gardens of Leixlip Castle" (F. and W. T. Longworth Dawes, *in lit.*, Dec. 30th, 1892).

Co. WICKLOW.—Mr. T. A. Tombe informed me (in 1891) that Martens are plentiful in the woods about Glenealey, and that Dr. Seeper, of Rathdrum, got nine in one season. They are most readily killed when the bilberries are ripe, for they are very fond of the berries. I have an interesting letter confirmatory of this from Dr. Seeper, but cannot just now lay my hands on it.

KING's Co.—A female Marten was trapped in July, 1892, at Greenhill, Emdenderry, by Mr. T. Longworth Dawes, who sent it to Mr. Williams, of Dublin, for preservation. Mr. Longworth Dawes writes that "It was a pretty old doe, and had not had young that season; I trapped the whole place in the hope of getting another, but without success. I heard since of an animal being seen several times about four miles from this, which I concluded was another Marten; but from what I have recently learned, I think it is open to doubt whether it is not an escaped Polecat-ferret."

QUEEN's Co.—Capt. J. J. Dunne states that he has met with the Marten in this county.



Co. CARLOW.—See Kilkenny. Mr. P. W. Trim, of St. Mullins, wrote, in August, 1892, that he thought the decrease in [the number of Squirrels in the woods of St. Mullins was due to the presence of Martens. He added, "The Marten produces about six young ones in May or June, generally in old hollow trees, clefts of rocks, &c." Mr. C. F. Deane Drake informs me that the fishermen of the Barrow, about St. Mullins, state that the Martens will enter the fishing-cots and take trout out of them.

Co. KILKENNY.—"The woods of Woodstock are frequented by the *Mustela martes*, Yellow-breasted, or Pine Marten, a different animal from the White-breasted Marten, *Mustela foina*, which is destructive to sheep; the former never quits the woods, but occupies the nests of scald-crows, killing their young" (Tighe's 'Kilkenny,' 1802, p. 570). Mr. J. H. O'Connell writes that a Marten was killed by the foxhounds, but cannot give the exact date. In certain of the wooded parts of Kilkenny and Carlow the Marten is still plentiful, and I have received specimens within the last year or so, and heard of others which were kept as pets in New Ross.

Co. WEXFORD.—The Marten probably occurs now only as a straggler, from Kilkenny, Carlow, or Wicklow, though no doubt it was regularly to be found in the wooded parts of the county until a few years ago. I have the following notes from this county:—Mr. Byrne, of Rosemount, New Ross, states that "Marten-cats have been shot about twenty-five years ago, since which time none have been seen" ('Irish Sportsman,' April 2nd, 1892). Mr. John Plummer, lately steward at Kilmanock, stated that about thirty years ago he saw and chased a Marten with two terriers near Newtownbarry; it took to a tree, however, and finally escaped. The Marten seems to have been common enough then, for Mr. Plummer stated that they could be heard in the night "whistling," and that people used to watch their lambs at night to save them. Mr. J. S. Deane Drake, of Stokestown, New Ross, wrote (Oct. 1st, 1888):—"I trapped three Marten-cats (Pine Martens) here about fifteen years ago, but have not heard of any since. They were taken in a wire-trap, and showed a great fight with the dogs when let out." No doubt these are the "four" specimens alluded to on page 104 of the Editor's article. Dr. Cookman, of Kilkea House, Enniscorthy, wrote (Aug. 28th, 1888):—"I think the Marten is now totally extinct in this

neighbourhood. The last I have seen (now twenty-five years since) were at my brother's place, one and a half miles from here. There was a large pine-grove, and about 150 yards from it, in the centre of a field, was a clump of large beech-trees. One was decayed near the stem, with a hole and a long burrow. In this place two Martens made their residence, but they were so wary that, although I watched them night and day, I could not get near them. After some time, finding they were watched, they moved away, and I never saw them afterwards, nor have I seen one since, nor even heard of one. The common people call the Weasel [*i. e.* Stoat] a Marten. Mr. C. B. Moffat wrote from Ballyhyland (Oct. 16th, 1888):—"A few years ago my father lost a number of lambs in a manner that strongly suggested the work of an animal of the weasel kind, the throats being cut, the blood sucked, and the carcasses left. Traps were set, and, after a considerable number of lambs had been slaughtered, an animal was caught which the men took for a young fox and released. The destruction of lambs then ceased." The animal could hardly have been anything but a young Marten, as the events recorded occurred too early in the spring for young foxes to be about. On May 1st, 1892, a Marten was trapped at Coolbawn Cottage, near Ballyhyland, as recorded in 'The Zoologist' for March, p. 104. Col. H. Alcock, of Wilton Castle, in a letter to Mr. C. F. Deane Drake, stated (Oct. 15th, 1888), that "The last Marten-cat was trapped here about fifty years ago." Miss S. Fothergill told me, in 1887, that about ten years previously a Marten was killed at Berkeley, near New Ross; it had its home in a hole in a bank. Major James Glascott told me (in 1887) that a Marten was killed at Alderton, about six miles from New Ross, about ten years ago. He remembers Martens in the county, and says that they used to kill the lambs. "G. H. K." writes to the 'Irish Sportsman' (June 18th, 1892), "I have the skin of one that was killed somewhere New Ross way." Most of the County Wexford is copse, highly cultivated, and quite unsuitable for Martens.

#### MUNSTER.

Co. CLARE.—G. H. K., writing in the 'Irish Sportsman' (June 18th, 1893), confirms the statement that Martens occurred on the estate of Raheen, Tangraney, and adds that, owing to the protection afforded to them by the proprietor, "they overran the counties of Clare and Galway. One gentleman, near Mount

Shannon, lost seventeen pheasants in one night, destroyed by one cat that was killed, gorged with blood, in the morning." Martens "are sparingly scattered all through Ireland, especially in the wooded districts." Mr. E. G. Pennington, Commandant of the Royal Irish Constabulary Barracks in Dublin, states that in 1891 he met with the Marten about ten miles from Ennis. He writes:—"I was fishing in that neighbourhood, and the local Sergeant of Police told me of some Martens having robbed two bee-hives, and, traps having been set, two were caught one night, and the sergeant made the skins into a cape for one of his children." In the summer of 1892 Mr. Pennington was again in Clare, and found Martens "still fairly plentiful in the same locality. In the woods in the neighbourhood there are a great number of wild cherry-trees which bear a good deal of fruit, and the owner of the property was lamenting the fact that the Marten-cats eat them all, and was puzzled to know how they managed to get at the fruit at the ends of the long pendulous boughs. Another place I have heard of lately as still the haunt of the Marten is in the large woods on the shores of Lough Neagh." A skin of a Clare Marten, kindly sent me by Mr. Pennington, measured 2 ft. 4 in., total length, and 1 ft. 7 in. to the base of the tail; the throat was yellow, and the tips and backs of the ears light-coloured. Interesting notes on the propensity of the Marten for honey and robbing bee-hives will be found in 'The Field' for April 4th, 1871, May 17th, 1873, and Feb. 10th, 1877.

CO. TIPPERARY.—Capt. J. J. Dunne informs me that he has met with the Marten in Tipperary, and there is a specimen from this county in the Dublin Museum of Science and Art at Leinster House, presented by Mr. J. C. Springfield. Mr. E. G. Pennington states that in 1861 he saw one which was taken in a rabbit-trap at Rockforest, near Roscrea. The present owner of Rockforest informs me that "The Martens here are very seldom seen, and are evidently very shy animals. The last I saw was in a grove, and immediately it saw me it ran up an ivy-covered tree, where it quickly concealed itself." He states in another letter (Oct. 26th, 1892):—"The Marten-cats have been often caught here on the adjoining place (Timoney Park) from time to time, and there are still some of them about, but they are not nearly so numerous as formerly, and they are very seldom seen; in fact, only one of them was observed last year."

Co. KERRY.—Mr. J. C. Parker, of Winchester, informs me that Martens are still fairly numerous on Lord Kenmare's property. Mr. J. Charney, of Portarlinton, writes that while out shooting he once came across a Marten at Glenbeigh House, midway between Rosteigh Harbour and the Hotel at Rosbeigh. I got four skins . . . from 'Monghalevane' in the 'Black Valley' between Killorglin and Kenmare, at the southern side of the Reeks of Killarney, and I have heard that at one time, some fifteen years since, no fewer than sixty skins were got for the late Mr. Herbert, of Muckcross, in the same place; the throat-fur being a creamy yellow . . . I have seen more of their skins at the house of the MacGillycuddy of the Reeks, but I never saw one alive, except on the occasion mentioned above—that is, a wild specimen." Mr. T. Longworth Dawes informs me that he has seen skins from this county. Mr. W. F. de V. Kane, writing from Ardtully, Kenmare (June 25th, 1893), states that "I hear there are Marten-cats frequently to be seen here in the woods."

Co. CORK.—Capt. J. J. Dunne has met with the Marten in this county, but gives no exact locality nor date. Mr. E. G. Pennington writes:—"I met with the animal at Killarney about 1863. I had taken down some otter-hounds to hunt the country, and, when in a very remote part of the mountains, came on a very hot drag, which led us away towards some high rocks, in which a Marten took refuge, but not before we had run him well in view for some distance. I have no doubt that in that remote and savage region the Marten still holds his own."

#### CONNAUGHT.

Co. SLIGO.—There is a specimen from this county in the Dublin Museum of Science and Art. Mr. H. Lyster Jameson writes (March 26th, 1893):—"The Marten still abounds in the Ben Bulbin range in Co. Sligo. I saw unmistakeable signs of its presence in the caves of Gleniff, and the boy we took for a guide knew the animal well. Inland, at Markree Castle (the seat of Col. Cooper), the keeper has met with it, but thinks he has by this time exterminated it."

Co. LEITRIM.—Mr. Williams, taxidermist, Dublin, had a specimen from Manorhamilton in 1892. In reply to a letter of enquiry, Mr. J. G. Phillips, of Manorhamilton, writes (Dec. 30th, 1892):—"The Marten-cat is fairly plentiful here. The speci-



men Mr. Williams is stuffing for me was caught on Glencar mountain. I believe they also frequent Glenode and Glengariffe, and I have known one to be killed by a terrier, quite close to this town, in the open fields."

Co. GALWAY.—Capt. J. J. Dunne has met with the Marten in this county. The Hon. L. G. Dillon, of Clonbrock, Ahascough, writes (Feb. 9th, 1892):—"A 'Pine Marten' was shot here, I believe, long ago, but I have heard of several being killed in other parts of the country lately. Sir William Gregory, of Coole, near Gort, has a coat trimmed with the fur of some killed quite lately in his woods." *Vide* also G. H. K.'s notes under Co. Clare.

The above rough notes, combined with the Editor's statistics, leave only the counties of Monaghan, Cavan, Louth, Limerick, and Roscommon, absolutely without records, though the pretensions of some few other counties to include the Marten in their fauna are somewhat slender. It must be remembered that much of Ireland is now open, and unsuited to the habits of the Marten.

I regret very much that I have been unable to make this article more complete. I have numerous other notes on the Marten, on which I cannot now lay my hands, and a good many references to records of its occurrence in Ireland, which have from time to time appeared in 'The Field.'

I will conclude by giving an extract from a law still in force in Ireland, which shows how common Martens were in that country a hundred years ago, insomuch that the reward for killing either an Otter or a Marten was the same. By the 27th George III. chap. 35, it was enacted, amongst other things, "That from and after the 1st day of July, 1787, any person or persons who shall take, kill or destroy otters, martens, weazels, rats, cormorants, kites or magpies, shall receive for every otter or marten, 5s.; for every weasel, 1s.; for every cormorant or kite, 6d.; for every magpie, 3d.; and for every rat, 1d."

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Mr. Robert Patterson, of Malone Park, Belfast, sends the following corrections and additions for Ulster:—

Co. DONEGAL.—Thompson says, "J. V. Stewart notes the yellow-breasted Marten in his catalogue of the mammalia of this

county." It is also mentioned by the late Col. J. Whyte. Major Hamilton, of Ballintra, informs me that in one year, between 1865 and 1870, he shot one and trapped another, and he had trapped some before these dates. He says they used to steal plums on the garden wall, and be caught on the top of it.

Co. ANTRIM.—Two were killed in Glenarm Deer Park in 1866, and Lord Antrim informs me this is the only instance where a pair was caught at one time. About forty years ago one was trapped at Garron Tower. Cookstown is not in Co. Antrim, but in Co. Tyrone.

Co. FERMANAGH.—In former times it was frequently found in wooded demesnes along the shores of Lough Erne, but now seems to be quite unknown there. The last Marten seen at Florence Court was killed by Lord Enniskillen about thirty years ago. One was taken in July, 1869, at Killaleas, Lough Erne. The Earl of Erne tells me that about twenty years ago he killed a Marten while covert-shooting on an island in Lough Erne. An old man who was with him at the time stated that they used to be plentiful there when he was a boy, but that he had not seen one for at least forty years.

Co. MONAGHAN.—In 1891 one was trapped at Glasslough.

Co. ARMAGH.—Capt. Bond Shelton has sent me the skin of one trapped at the Argory, about twenty-four years ago.

Co. DOWN.—It was in 1854, not in 1884, that some were seen at Portavoo, between Bangor and Donaghadee. Montalto, Ballynahinch, is the name of Capt. Ker's property.

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## ON AN EARLY NOTICE AND FIGURE OF THE GREAT AUK.

By MILLER CHRISTY, F.L.S.

ALTHOUGH the early literature relating to the Great Auk seems to have been, on the whole, pretty thoroughly investigated, the record to which I have now to call attention has been almost entirely overlooked, while the figure accompanying it has, I believe, wholly escaped notice, although both the passage and the woodcut are by no means devoid of interest.

The record in question appears in the Fourth Book of John Seller's 'English Pilot' (London, folio), a work which went

through a number of editions in the latter part of the seventeenth century and throughout the eighteenth. The first edition, which was published about the year 1673, does not contain the passage, which first appears (so far as I have been able to discover) on p. 17 of the edition of 1728. It occurs among some directions for sailing upon the coast of Newfoundland, and reads as follows:—

*“Some Directions which ought to be taken notice of by those who sail to Newfoundland.*

“The Bank of Newfoundland would be of very great service to those that are bound to that coast, was the said Bank exactly laid down. \* \* \*

“There is also another thing to be taken notice of, by which you may know when you are upon the Bank. I have read an



[Figures of *Alca impennis*, from Seller's 'English Pilot.']

“*Note.*—These fowls never fly, for their wings are very short, most like the fins of a fish, having nothing upon them but a sort of Down and short Feathers.”

Author that says, in treating of this coast, that you may know this by the great quantities of fowls upon the Bank, *viz.* Sheerwaters, Willocks, Noddles, Gulls, and Pengwins, &c., without making any exceptions; which is a mistake, for I have seen all those Fowls 100 Leagues off this Bank, the Pengwins excepted. It's true that all these fowls are seen there in great quantities, but none are to be minded so much as the Pengwins, for these never go without the Bank as the others do, for they are always on

it, or within it, several of them together, some times more, other times less, but never less than two together. They are large fowls, about the bigness of a Goose, a coal-black Head and Back, with a white Belly, and a milk-white spot under one of their Eyes, which Nature has ordered to be under the right Eye, and extraordinarily remarkable. For my part, I never saw any with such a spot under their left Eye, the figure of which I have here set down to facilitate the knowledge of them, &c."

This information also appears in identical terms, or with wholly unimportant variations, in the editions of 1737, 1755, 1760, 1775, and, I suppose, in that of 1794 (which, however, I have not seen), to judge from the fact that Sir Richard Bonnycastle, in his 'Newfoundland in 1842' (London, 2 vols., 8vo, vol i. p. 232), quotes a portion of a very similar passage from the edition of that year. The same figures (here reproduced) occur in all the above-mentioned editions, unless they be omitted from that of 1794.

Mr. Grieve (who does not seem to have referred to Seller direct) quotes the fragment given by Bonnycastle, with further variations of his own ('The Great Auk,' p. 66, *n.*); and, like Bonnycastle, he makes no reference to the figures, which appeared in the various editions of Seller's work, and which are here reproduced in facsimile by the photo-zinco process. Prof. Newton, too, in his article on "The Gare-fowl and its Historians," published in the 'Natural History Review' for October, 1865, refers (p. 483) to Seller's 'English Pilot' as "a work we ourselves have not been able to examine," and quotes, in consequence, only the fragment given by Bonnycastle. My attention has been kindly drawn to these facts by the Editor. As, therefore, two leading writers on the history of the Great Auk have been unable to obtain access to the original work, it seems well worth while to reproduce here the passage and the illustrations in question.

Whilst upon this subject, it may be worth while to mention that, upon many of the earliest charts of Newfoundland (1500-1560), which I have lately had occasion to study, there are represented several islands bearing the names "Ilha aves" or "Isle des Oiseaux," which may certainly be regarded as an indication of the abundance of sea-fowl—the Great Auk, no doubt, being among the species—upon some of the islands off



that coast. Thus, on the map of New France, drawn by Jacomo di Gastaldi about the year 1550 for the third volume of Ramusio, we find Newfoundland divided into a number of islands, upon which are shown large birds and bears, while on the intersecting water-ways are more birds, and in the adjacent seas are represented various fishes and cetaceans—to say nothing of several curious little devils upon the imaginary “Island of Demonios.” In several places, natives are represented shooting at the birds with bows and arrows as they rest upon the land near the sea-shore, which may be taken to indicate that the birds intended to be represented were large and tame, and were, therefore, very likely Great Auks, notwithstanding the fact that some, at least, of them are represented with wings; for a non-observant seaman, or his draughtsman, might, under the circumstances, think it most proper, when drawing birds, to draw them with wings, whether the particular species possessed them or not.

It may be also worth while to mention that the name Fugla-skeir, or Fowl Skerries, on the south-west coast of Iceland, which is commonly supposed to have arisen in consequence of the large number of Great Auks inhabiting the rocks in question, is very ancient; for the name appears in the form of “Flogascer” (Fogla-sker) on the celebrated Zeno map, which was drawn within a few years of the close of the fourteenth century, though not published until 1558.

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## ON THE SIZE OF THE BRITISH NEWTS.

By G. A. BOULENGER.

THIS is an enquiry which has hitherto been somewhat neglected. We know, of course, that the Crested Newt, *Molge cristata*, is the largest; that next comes the Common Newt, *M. vulgaris*; and last, the Palmated, *M. palmata*; but few accurate measurements have yet been published of the maximum length to which each species is believed to grow in this country. I have for some time been endeavouring to collect the finest specimens procurable for the British Museum, and have kept note of their dimensions, as well as of the length of the largest continental specimens mentioned in the literature or preserved in the Museum. Curiously, within the last twelve months I have

succeeded in adding to the collection specimens of all three species, which, with the exception of the male *M. palmata*, are larger than any on record, whether British or continental. I would request the readers whom this note may interest to endeavour to ascertain whether any specimens can be found exceeding the dimensions indicated below.

### 1. *Molge cristata*.

De l'Isle (Ann. Sc. Nat. xvii. 1862, p. 366) for France, and Fatio (Vert. Suisse, iii. p. 530) for Switzerland, give the following dimensions of the largest specimens measured by them:—

		Males.		Females.	
		Nantes.	Basle.	Nantes.	Geneva.
Total length	... millim.	141	137	150	148
Length to cloaca	.. „	—	70	—	71

Schreiber (Herpet. Eur. p. 48), without specifying locality or sex, says the species grows to 160 millim.; and Bell (Brit. Rept.) gives 6 inches (152 millim.) as the maximum length.

The largest specimens I had examined until quite lately were sent to me from Argenton (Indre), France, by M. R. Parâtre, and measured:—

		Male.	Female.
Total length	... millim.	142	157
Length to cloaca	.. „	72	76

In the second week in February, of the present year, Mr. Edward Dodson found in some puddles at Hampton, Middlesex, numerous specimens in full breeding costume, some of which he kindly brought me for the Museum collection. I visited the place with him three weeks later, and, with the aid of a small net, we succeeded in capturing 66 specimens in half an hour. Among these some even exceeded, if but slightly, my French specimens, and are, so far as I am aware, the largest on record:—

		Male.	Female.
Total length	... millim.	144	162
Length to cloaca	.. „	77	87

### 2. *Molge vulgaris*.

The length of the largest specimens (from Basle) is given by Fatio as:—

			Male.	Female.
Total length	...	...	millim. 98	80
Length to cloaca	...	„	45	40

which concords with the length assigned to British specimens by Bell.

Larger specimens, from Knockholt, Kent, were presented to the British Museum in May last by Mr. W. Blackwell. They measure :—

			Male.	Female.
Total length	...	...	millim. 104	94
Length to cloaca	...	„	45	46

I had previously collected nearly equally large specimens near Brussels.

### 3. *Molge palmata*.

This is the smallest European species. Schreiber's statement that it is usually somewhat larger than *M. vulgaris*, unless copied from Leydig, is to be explained by his having confounded *M. boscae* and *M. palmata* under the name of *Triton helveticus*. His specimen, 88 millim. long, therefore, probably belongs to *M. boscae*. The largest specimens studied by Fatio (*op. cit.*), from Switzerland, Lataste (Faune Herpet. Gironde), from S. France, and v. M  hely (Math. Term. K  slem., Budapest, xxv., 1893, No. 4), from Freiburg i. Br., present the following dimensions :—

	Males.			Females.		
	Geneva.	Freiburg.	Gironde.	Geneva	Freiburg.	Gironde.
Total length* millim.	86	74	67	73	76	74
Length to cloaca „	37	34	—	34	34	—

Specimens which I obtained in April last, at Fowey, in Cornwall, nearly equal (♂) or exceed (♀) any of the above :—

			Male.	Female.
Total length	...	...	millim. 80	85
Length to cloaca	...	„	36	42

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\* Including the caudal filament.

## NOTES AND QUERIES.

## MAMMALIA.

**Supposed Occurrence of *Vespertilio murinus* in England: Correction of an Error.**—In reply to enquiries as to the evidence for including the Mouse-coloured Bat (*V. murinus*) in my List of the *Vespertilionidæ* found in the Isle of Wight (see Venables' 'Guide,' 1860), I may explain that it was the late Mr. F. Bond who wrote me that he had obtained this species at Freshwater, and I relied altogether upon his identification, knowing how very accurate and careful he was; but, some years afterwards, he wrote that the large Bat which he had found at Freshwater was the Noctule, *V. noctula*, and not *V. murinus*. I remember, also, that the same mistake was communicated to the Linnean Society by the late Prof. Thomas Bell, to whom I had mentioned it. Another Bat, given as Daubenton's Bat in Venables' 'Guide,' Mr. Bond told me proved to be *V. mystacinus*. Both errors were set right by myself in a list of Isle of Wight Quadrupeds given in Jenkinson's 'Practical Guide to the Isle of Wight' (1876), and I am only sorry that I did not make the correction more generally known, since it concerns such a very dubiously British species. — A. G. MORE (Dublin).

**Stoats in Ermine Dress.**—A nearly white Stoat was caught in a mole-trap, near here, on March 5th. The only parts retaining the brown colour are narrow rings round the eyes. A precisely similar example was killed at the end of February or beginning of March, 1891. I have examined several other Oxfordshire examples of these "spectacled" Stoats, and it appears that a ring of fur round each eye are the parts which least often become white. In a previous note ('Zoologist,' 1884, p. 112) I have remarked upon the assumption of the ermine dress by English Stoats in mild winters.—O. V. APLIN (Bloxham, Oxon).

**Squirrels destructive in Plantations.**—A short time ago we remarked the ground beneath a spruce fir strewn with young shoots, cut off at the terminal joint of each sprig; the cluster of buds at the severed joint and most of the single buds at the extreme point were empty. Another spruce has since been attacked, and we are much afraid of the havoc extending to a very handsome American pine close by. As during the past winter some cattle belonging to a neighbour were killed by browsing upon a yew, my husband cut off the lower branches of a fine old tree on our lawn, and, on passing by it a few days ago, he was much surprised to find the ground strewn with terminal shoots nipped off, as if with a pair of clipping shears.



On sending a boy to pick them up, he returned with two good-sized baskets filled with sufficient yew shoots to have killed most of the cattle now feeding on the lawn; these, I need hardly say, were promptly buried. Squirrels have become very numerous in our plantations, and one has been seen under the spoiled spruce fir, but not in the act of nipping off the young shoots. Our puzzle is, if these little creatures are guilty of the mischief, how do they reach to the ends of the branches, which in some instances would hardly support the weight of a small bird? If they are not guilty, what could have caused the young shoots to fall off in such a strange manner? One tree seems completely bared. Is it possible that the one night's frost which killed so many indoor plants, and even broke their china flower-pots, could have injured trees in such a manner?—FRANCES I. BATTERSBY (Cromlyn, Rathowen, West Meath).

**Habits of the Bank Vole.**—Mr. Newman Neave suggests (p. 109) that the Bank Vole is less hardy than some other small mammals, and succumbs to hard frost. I do not think that this explains why the species becomes less plentiful in winter. What we find in Lakeland is, that in cold weather the Bank Vole lies up in its favourite winter home, *i. e.*, in heaps of turnips. It is generally found in parties of five in winter. We have had some mounted for the Carlisle Museum, and at my suggestion Mr. Thorpe made a glass case for them, so that our taxidermist could keep them in the bird-stuffing room and mount them from life. Those we have kept this winter have entertained us not a little by their life and energy; they have fought a good deal, and I confess we enjoyed their tussles, as they bite and spar with one another in the angriest way. Unfortunately one of their battles ended fatally, and the vanquished Vole was eaten by his rival. It is pretty to see the little fellows sitting up on their haunches, nibbling the pips of apples which they hold in their paws. They are very fond of preening their fur, which they manage to keep in splendid order. Their appetites are truly astonishing; we feed them chiefly on apples, but they are very partial to turnip-roots, and where numerous must do a good deal of damage to the root crops.—H. A. MACPHERSON (11, Victoria Place, Carlisle).

**Marten in Co. Dublin.**—In reply to your request for information respecting the occurrence of the Marten in Ireland, I have much pleasure in informing you that in the month of November last I saw what was undoubtedly a Marten in the neighbourhood of the village of Golden Ball, Co. Dublin. I was at the time driving, and the animal ran for about a hundred yards along the road in front of the pony. At first I thought it was a Stoat (known in this locality as a Weasel), but it suddenly stopped and sat just in the attitude depicted in 'The Zoologist' for February, and I have no doubt whatever that it was a Marten. When I got within about

twenty yards of it, it slipped quietly into the bushes, at the roadside, and was lost to view.—J. J. DOWLING (Stillorgan, Co. Dublin).

## BIRDS.

**Varieties of the Goldfinch, Greenfinch, Reed Bunting, and Blackbird.**—In October last one of the prettiest varieties of the Goldfinch I have ever seen was caught with other Goldfinches near Cambridge. It is pure white, having on each wing a broad band of the brightest yellow; eyes pink. A pale grey female Greenfinch was shot near Cambridge about the same time. In December a very pretty white variety of the Reed Bunting was shot, also near Cambridge; it has many grey feathers interspersed amongst the white ones, and is a striking and uncommon variety. I have added these birds to my collection of varieties, which now contains over 450 specimens of 107 British species. When in York, in November last, I bought a very curious variety of the Blackbird. The plumage is slate-coloured; the top of the head pure white; and the throat, wings, and breast also white.—J. WHITAKER (Rainworth, Notts).

**Heron carrying off a Waterhen.**—A Heron came down on a Waterhen at the brink of a pond here a short time ago, carried it off to a high bank (both birds screaming), and, after giving it two or three pecks, flew away with it. I have known Herons to carry off Water Rats, but never heard before of their getting hold of Waterhens.—JOHN DILLON (Lismullen, Navan, Co. Meath).

**White Robins in Surrey.**—In the summer of 1893, among a number of Robins hatched in the garden of Wilmer House, Ham, Surrey, was one white bird. I had two opportunities of watching the bird at very close quarters, as he was very tame, and a short time ago I heard that it had been shot by a boy friend, and have since seen it in its stuffed state. It is a very large specimen, nearly white, save for a little brownish colour on the back, and a slight reddish patch on the throat; legs long and slender, and semi-transparent; eyes black, which I am informed was their colour in the flesh. I heard of another white Robin having been seen in Richmond Park.—ARTHUR W. HASTED.

**Waxwing in Co. Down.**—On February 23rd last, I examined a Waxwing, *Ampelis garrulus*, sent in from Portaferry, Co. Down. It was an immature male, had seven "wax" points on each wing, and measured eight inches from tip of bill to end of tail. It had been found in a potato shed and was much emaciated, weighing only 1½ oz.—ROBERT PATTERSON (Malone Park, Belfast).

**Cuckoo seen in March.**—We are accustomed annually to hear reports of the Cuckoo being seen or heard long before the usual date of its arrival. Such rumours, however, generally come from irresponsible persons, some

of whom do not know a Cuckoo from a Hawk, and others probably are deceived by cuckoo-clocks in cottages, or by clever imitations of country lads. It seldom happens that we receive such circumstantial evidence as the following. Dr. A. J. Fleming, of Ragleth House, Church Stretton, Salop, writing on March 6th, says:—"When driving along a country road yesterday (March 5), I had a very good view of a Cuckoo. As it is more than a month earlier than the date at which the birds usually arrive, I thought it might interest some of your readers to record the fact. I am quite satisfied that it was a Cuckoo which I saw, and that I did not mistake any other bird for one. We get a great number of these birds here every spring, and I am quite familiar both with their appearance and mode of flight. Moreover, my servant man, who also knows the birds well, saw it also. It flew out of the hedge nearly opposite my dog-cart, and flying low along the ground for about fifty yards, again entered the bottom of the hedge. I marked the spot, and on coming close to it the bird flew out again, and again flew along in front of me and entered the hedge as before. This was repeated four times, so that I had a very good opportunity of observing it. The first time I was somewhat doubtful whether it was not a Sparrowhawk, which the Cuckoo somewhat resembles, and had I not seen it a second time I should have remained doubtful of its identity. Its mode of flying along the bottom of the hedge, and the way in which it popped in and out, were not at all like the movements of a hawk. It gave no note. Assuming the accuracy of my observation, it is an interesting question how it comes to be here so much before the usual time. Can it have passed the winter in this country? or might it possibly have reached our shores aided by the long-continued south-west gales to which we have been treated this winter? I should be glad to hear what some of those who are learned in such matters have to say on the point."—A. J. FLEMING.

**Snow Bunting at Bolton-le-Moors.**—It may be of interest to place on record the appearance of this species in this district, two female birds having been shot at Horwich during the last week of February. In both the ovaries were much developed.—C. E. STOTT (Bolton-le-Moors).

**King Eider off Achill Island, Co. Mayo.**—On the 12th Dec., 1892, I fell in with a fine male King Eider, *Somateria spectabilis*, near Dugort, Achill Island. It must be a rare visitor to the West of Ireland, for I never saw one in the flesh before, although, considering the numerous bays and inlets about here, it is quite likely that other specimens have occurred and escaped notice.—J. R. SHERIDAN (Dugort, Achill Island).

**Surf Scoter off Achill Island, Co. Mayo.**—The Surf Scoter, *Oedemia perspicillata*, has several times occurred here of late years. I have myself seen three. Two were met with in October, and one in December. One of these I shot on the 25th Oct., 1870. The two were very tame, and allowed me to approach within twenty yards of them. Unfortunately, I

had only a large rifle with me at the time, and so failed to secure more than one. The protuberance at the base of the upper mandible, and the white patch on the back of the neck, were very conspicuous, and it was therefore impossible to mistake the species. The third specimen I observed in December, 1890, in Duach Bay. It was diving outside the breakers, and I saw it distinctly through a glass. The surf was too heavy to allow of a boat being launched, so that I was unable to go in pursuit of it. The only one of these three which I shot was an immature female, and I am informed by Mr. A. G. More, of Dublin, that this is the eighth specimen, so far as is known, which has been obtained on the coasts of Ireland.—J. R. SHERIDAN (Dugort, Achill Island).

**Early Nesting of the Heron.**—On March 3rd a friend and I found a Heron's nest containing five eggs. Is not this an unusual number? None of the others examined contained more than two, though the remains of an egg below one of the nests in which two were noticed leads us to believe that three had been laid in that one.—J. A. BUCKNILL (Hylands House, Epsom).

**Woodcocks Breeding in the Lake District.**—In connection with Mr. G. W. Murdoch's note under this heading (p. 112), I may mention that in the spring of 1888 I found a Woodcock's nest within a couple of miles of Keswick. It was placed on some heathy ground and contained four eggs, from which the old bird rose as I passed. An interesting point in the distribution of this species during the breeding-season is the fact that it nests every year in considerable numbers in the New Forest, Hampshire.—HARRY F. WITHERBY (Blackheath).

**Mealy Redpoll in Achill Island, Co. Mayo.**—Two specimens of *Linota linaria*, Linn., a rare visitor to Ireland, were shot in Achill Sound, in February, 1893, by a lady resident there, Mrs. Harvey, of Glenderary, who presented one of them to the Dublin Natural History Museum. I am inclined to think that this bird visits Achill Island every winter, but escapes notice from its small size. I remember seeing some, several years ago, feeding on a bunch of thistle-heads, as I informed Mr. A. G. More by letter, but not having secured a specimen, I suppose he did not consider the identity of the species sufficiently established to record it.—J. R. SHERIDAN (Dugort, Achill Island).

**Buffon's Skua off Achill Island, Co. Mayo.**—On the 29th Sept., 1892, I shot one of these birds near the village of Duach. Being a male in the adult plumage, I had no difficulty in identifying it.—J. R. SHERIDAN (Dugort, Achill Island).

**Waxwing near Newmarket.**—Mr. Baker, the taxidermist at Cambridge, has a male Waxwing which, he informs me, was shot at Balsham,



near Newmarket, and was sent to him for preservation on Feb. 26th.—G. E. H. BARRETT-HAMILTON (Trinity College, Cambridge).

**Date of arrival of Lesser Whitethroat.**—A slight error has crept into my "Notes," p. 93. The date of the arrival of the Lesser Whitethroat in Warwickshire in 1892 should be April 9th, not April 2nd. But the 9th even, is a very early date for it. The average date of my observation of this species in North Oxon for twelve years (1880–1892, omitting 1883, when I probably overlooked it, and did not note it until May 21st), is April 29th. If 1892 is omitted, the average date for the eleven years is April 30th. On p. 98, for "two yards" read "ten yards."—O. V. APLIN (Bloxham, Oxon).

**Ducks assuming Drakes' plumage.**—My remarks on the partial assumption by female birds of male plumage (p. 15) has elicited from the Rev. H. A. Macpherson a very interesting correspondence, in which he mentions a female Scoter, *Edemia nigra*, shot and dissected by Mr. Bartlett, of Maidstone, in which the brown plumage of the upper parts was replaced by black. He has also reminded me of a similar case of a female Velvet Scoter, *Æ. fusca*, in my own collection, which has no lore spot and no ear spot, and a dark brown belly unsuffused with any grey, and a very dark back. Both these birds are considered to be cases in point, viz., females assuming male plumage, but I had forgotten all about the Velvet Scoter when writing on this subject before. It does not appear, from our standard works on Ornithology, that the adult plumage of the female Scaup Duck has been recognised by British writers, and as the females on two or three occasions have been suspected of assuming male plumage, I should like to say something about them. From the Rev. H. A. Macpherson I have received eight picked female Scaups; from Mr. Caton Haigh, three; from Mr. Coburn, two; and from other sources, seven; and I have subsequently examined five or six more, besides reading the experience of Mr. A. C. Chapman, who has written at length on the plumage of the Scaup Duck (Zool. 1887, pp. 7–9). Of these twenty-six ducks inspected, fifteen were proved to be females by dissection, and the others were assumed to be females from their plumage. Seventeen of them have white faces, and of these, seven have besides sooty black heads faintly shot with green, but this green tinge does not approach in brilliancy the bottle-green head of a fully adult drake. Ducks in this dress are adult, but are not to be regarded as females assuming the male plumage. It is stated, however, by Mr. Macpherson that such cases sometimes occur ('Study of British Birds,' p. 72), and he has had good opportunities of investigating the different phases of plumage in the Scaup. In fully adult female birds the depth of colour of the head, and the purity of the white of the face, vary a little, the two finest I have seen being one from

Leadenhall, and one of Mr. Coburn's, killed in Ireiand lately. Mr. Macpherson has one very remarkable Scaup Duck, a female by his own dissection, shot April 28th, 1888, with the greyest back of any female Scaup I have seen, and a black face instead of a white one, which I think must certainly be an instance of a female assuming male plumage, and such he also considers it, but the ovary was not diseased. Its cheeks, however, and the side of the neck, are as brown as those of any female Scaup, and the breast is a mixture of brown and black. Mr. Chapman, however, tells me that in his opinion the old female Scaups almost lose the white face every summer, adding that he has frequently seen in a private garden near Newcastle, an old female Scaup at midsummer, with a sooty black head and only a trace of the white face remaining. A female Scaup, shot in Sweden by Mr. J. P. Johnson on July 2nd, as he tells me, has a light-coloured face of a brownish or dirty white tint, which bears out Mr. Chapman's observation. It does seem that there is a good deal more yet to be learnt about the plumage of our common ducks than is to be found in books; and it is further complicated by the fact that females of some of them occasionally assume the male plumage.—J. H. GURNEY (Keswick Hall, Norwich).

**Hybrid Sparrows.**—When commenting upon a hybrid Tree and House Sparrow, forwarded for inspection by Mr. Tuck (p. 112), I observed that I did not remember more than one reported case of such a hybrid occurring *in a wild state*, and referred to the one mentioned by M. Suchetet as having been taken in France in December, 1868. I had overlooked the two other cases recorded by Mr. Macpherson in his 'Fauna of Lakeland.' He states (at p. lxxx of his Introduction) that he had, on two different occasions, seen wild birds which presented all the appearance of having been bred from a male Tree Sparrow and female House Sparrow, and of these he has given full particulars. The second of these examples was obtained at Aiglegill, so recently as the spring of 1892. It follows, therefore, that Mr. Tuck's specimen is not the first of the kind which has been procured in a wild state in England.—J. E. HARTING.

#### REPTILIA.

**Palmated Newt in Worcestershire and Shropshire.**—During the height of the present breeding-season (middle of March), I have found this species particularly abundant in the many small pools and water-holes of the Wyre Forest. They are common on both sides of the Dowles Brook, which runs through the forest, forming the boundary line between Worcestershire and Shropshire. Newts in general are known as "asgulls" in this locality. To the best of my knowledge this species has not been recorded before for either of these two counties.—J. S. ELLIOTT (Dixons Green, Dudley).

## SCIENTIFIC SOCIETIES.

## LINNEAN SOCIETY OF LONDON.

February 15th, 1894.—Prof. STEWART, President, in the chair.

Mr. A. Whyte was elected a Fellow of the Society.

Dr. Maxwell Masters exhibited a remarkably good specimen of *Peziza tuberosa* on roots of *Anemone*. It is only comparatively recently that the hard lumps (sclerotia) in the soil of anemone-beds have been definitely associated with the fruit of this *Peziza*; at one time the sclerotia were regarded as diseased masses of the root-stock. Dr. Masters also exhibited some root-galls on plum caused by *Cynips (Biorhiza) terminalis*. Mr. Cameron in his monograph on the *Cynipidæ*, published by the Ray Society, has noticed galls formed by this insect on the beech, pine, and vine, but not on the plum.

Mr. Digby Nicholl exhibited a singular variety of the Partridge, *Perdix cinerea*, which had been shot by Mr. A. Waugh, near Creswell, Northumberland, in September, 1893. In colour it resembled the Red Grouse, having the breast and flanks suffused with large patches of dark reddish brown, and the dorsal plumage very much darker than usual. Mr. Harting pointed out that this variety was described and figured by the late John Hancock, in his 'Catalogue of the Birds of Northumberland,' where it had been met with more than twenty years ago, and in this county he himself had also procured a specimen at Corbridge-on-Tyne, which was preserved in the collection of varieties formed by the late Mr. F. Bond.

Mr. Norman Douglass exhibited a black variety of the Water Vole, *Arvicola amphibius*, captured at Banchory, Kincardineshire, remarking that this variety, which was at one time considered to be restricted to Scotland, had been met with in several English counties (Zool. 1892, pp. 281—293), and was well established in the fen country of Norfolk and Cambridgeshire.

Mr. George Brebner read a paper on the "Origin of the filamentous thallus of *Dumontia filiformis*," in which, by the aid of the oxyhydrogen lantern, he demonstrated—(1), that *D. filiformis* has a creeping basal thallus by which it adheres to the substratum; (2), that the creeping thallus is perennial, and when epiphytic is attached to its host by plugs of tissue which cause marked disintegration of the cells of the host; (3), that the ordinary filiform thallus owes its origin to the intercalary transverse septation of the articulations of certain branches of the creeping thallus. The group of active filaments may be endogenous or exogenous, and the order in which the rows of cells become specialized is generally centrifugal; (4), these specialized outgrowths emerge from the creeping thallus—remaining attached to it by the basal portion—and by the subsequent growth and division of the constituent filaments give rise to the annual well-known

*D. filiformis* thallus. The paper, which was listened to with great interest, was criticized by Dr. D. N. Scott, Mr. George Murray, and others.

On behalf of Mr. D. J. Scourfield, a paper was communicated by Prof. Miall on "Entomostraca and the surface-film of water." Briefly summarised, the principal views advanced in this paper were the following:— (1). To many Entomostraca, the surface-film of water is a very dangerous element in their environment. To this category belong large numbers of the Cladocera and Ostracoda. (2). To some others, on the other hand, the surface-film affords peculiar advantages. This class includes, so far as yet known, only a few specially modified Cladocera and Ostracoda, and some Copepods, which do not, however, present any apparent structural modifications. (3). In all cases (except where some Copepods possibly make use of the properties of the surface-film to attach themselves to aquatic plants above the general water-level) the relation to the surface-film, whether beneficial or the reverse, depends fundamentally upon the same physical principles,—namely, the upward pull of the surface-film when forming a capillary depression,—and the possession by the animals of water-repellent shells, ridges, scales, or setæ, capable of penetrating the surface-film, and producing capillary depressions.

March 15th.—Prof. STEWART, President, in the chair.

Mr. A. G. Tansley was admitted, and Messrs. J. H. Barkill and J. C. Lisbon were elected Fellows, and Mr. Thomas Hick was elected an Associate of the Society.

Mr. Clement Reid exhibited some cones of Scotch fir, and also some carbonised pine-wood from a peat-moss at Parkstone, Dorset. He said the pine had become extinct in the South of England after Neolithic times, and had been reintroduced only recently. Its extinction was commonly supposed to be due to forest fires. He found that every piece of pine-wood imbedded in the peat-moss was similarly charred, while portions imbedded in sand were little altered, and he suggested that the appearance of burning might possibly be due to the action of the growing peat, and have nothing to do with fire. A discussion followed, in which Messrs. Carruthers, Hanbury, Christy, and others gave reasons for adhering to the older theory.

Mr. Carruthers exhibited a diagrammatic table, showing an accurate counting of the annual rings of growth in three gigantic specimens of *Wellingtonia*, *Sequoia gigantea*, from which he calculated the age of the trees. A section of one in the British Museum (Natural History), 15 feet in diameter, which was a living tree when cut down, he estimated to be 1330 years old. As illustrative of the size to which these trees grow, he mentioned that he had measured two in America, one of which was 92 feet and the other 77 feet in circumference. A discussion followed on the conditions which accelerated or retarded growth; and Mr. G. Murray, in reply to a suggestion of Mr. Reid, pointed out that a number of experiments



had been made on various trees to test their rate of growth under different conditions of weather and temperature, but that the results varied to such an extent as to afford no basis for sound conclusions.

Mr. A. B. Rendle exhibited the fruit of *Melocanna bambusoides* from the Mauritius, where it had been introduced, and gave some account of its structure and mode of growth, referring to the figure of it given by Roxburgh, in his 'Plants of the Coast of Coromandel' (pl. 243), under the name *Bambusa baccifera*.

Mr. C. B. Clarke gave the substance of a paper "On certain authentic *Cyperaceæ* of Linnæus," describing the results of his examination of the type specimens in the Linnean Herbarium, with suggestions for some rectifications in the nomenclature. Referring incidentally to the history of this Herbarium, he regretted the additions which had been made to it since the death of Linnæus, and the introduction of plants which Linnæus had never seen. In the discussion which followed, Mr. Carruthers and Mr. Daydon Jackson explained under what circumstances these additions had been made, and showed that it was antecedent to the collection coming into the possession of the Society, since which time no alteration in its condition had taken place.

Mr. George Brebner read a paper "On the development of the mucilage-canals of the *Marattiaceæ*," in which, with the aid of some excellent lantern-slides, he showed that these canals are schizogenous intercellular spaces arising from the separation of cells, and are lined by a persistent epithelium. The secretion is thus the product of the activity of the living cells, and not the result of cell-degradation. An interesting discussion followed, in which Dr. D. H. Scott, Prof. Reynolds Green, and others took part.

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#### ZOOLOGICAL SOCIETY OF LONDON.

Feb. 29th.—Prof. G. B. HOWES, F.Z.S., in the chair.

A report was read, drawn up by Mr. A. Thomson, the Society's Head-Keeper, on the insects bred in the Insect House during the season of 1893. Examples of 17 species of Bombyces, 29 of Diurnal Lepidoptera, and 24 of Nocturnal Lepidoptera had been exhibited during the past season, of which many had not been shown in former years. Amongst these were specimens of the fine insect *Actias mimosa*, from S.E. Africa, hatched from cocoons by the Rev. H. A. Junod.

Mr. Oldfield Thomas called attention to the skin of a Giraffe from Somaliland, sent for exhibition by Mr. Rowland Ward, and pointed out its difference from the South-African Giraffe.

A communication was read from Dr. R. W. Shufeldt, giving particulars of the methods used in preparing specimens of certain Invertebrates for public exhibition employed in the U.S. National Museum.

Mr. Sowerby read a communication forwarded to him by Dr. O. F. von Moellendorff, giving an account of a collection of Land-Shells from the Samui Islands, Gulf of Siam. These land-shells were referred to thirty-three species, of which many were described as new to science.

A communication from Dr. D. Sharp contained a list of the Hemiptera Heteroptera of the families *Anthocoridae* and *Ceratocombidae*, collected by Mr. H. H. Smith in the island of St. Vincent, with descriptions of new genera and species, prepared by Prof. P. R. Uhler, upon specimens submitted to him by the West-Indian Committee.

Mr. O. Thomas read the third of his contributions towards our knowledge of the mammals of Nyasaland, based, like the two former, on specimens forwarded to the British Museum by Mr. H. H. Johnston, C.B., H.B.M. Commissioner in British Central Africa. The present paper contained remarks on thirty-five mammals, of which two were described as new, and were named respectively *Lepus whytei* and *Procavia johnstoni*.

A communication from Dr. R. W. Shufeldt gave an account of the conclusions to which he had arrived respecting the affinities of the birds of the order Steganopodes.

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#### ENTOMOLOGICAL SOCIETY OF LONDON.

Feb. 28th, 1894. — Colonel CHARLES SWINHOE, M.A., F.L.S., Vice-President, in the chair.

Professor August Forel, M.D., of the University of Zürich, was elected an Honorary Fellow of the Society, to fill the vacancy caused by the death of the late Professor H. A. Hagen, M.D.

Mr. John Pratt, of the Cedars, New Barnet, and Mr. Michael Yeatman Woolf, of 1, Marlborough Place, St. John's Wood, N.W., were elected Fellows of the Society.

Mr. G. C. Champion called attention to a supposed new Longicorn beetle, described and figured by Herr A. F. Nonfried, of Rakonitz, Bohemia, under the name of *Callipogon friedländeri*, in the Berl. Ent. Zeitschr. 1892, p. 22. He said that the supposed characters of the insect were due to the fact that the head had been gummed on upside down! He also exhibited an extensive collection of Coleoptera and Hemiptera-Heteroptera made by himself in the island of Corsica in May and June last.

The Rev. Theodore Wood exhibited a variety of *Saturnia carpini*, with semi-transparent wings, a large proportion of the scales being apparently absent, bred with several examples of the type-form at Baldock, Herts; also a pale variety of *Smerinthus populi*, which was said to have been bred, with several similar specimens, from larvæ marked with rows of red spots on both sides.

Mr. R. South exhibited a variety of *Argynnis aglaia*, approaching the form known as var. *charlotta*, and a variety of *Euchelia jacobæ*, in which

the crimson costal streak was continued along the outer margin almost to the inner margin, taken by Mr. Fowler at Ringwood, Hants, in 1893; a variety of *Argynnis euphrosyne*, taken by Mr. Mead in Epping Forest in 1893; and a series of black and other forms of *Phigalia pedaria*, bred during the present year from a black female captured last spring by Mr. Rose, of Barnsley.

Mr. H. Goss exhibited, for Mr. C. B. Taylor, of Jamaica, a beautifully coloured drawing of the larva of *Papilio homerus*, Fab.

Mr. F. W. Frohawk exhibited drawings showing the complete life-history of *Argynnis aglaia* and *A. adippe*, every stage being figured; also enlarged drawings of the segments of the larvæ in their first and last stages, showing the remarkable difference in structure. Mr. Merrifield commented on the excellence of the drawings.

Mr. G. C. Champion read a paper entitled "On the *Tenebrionidæ* collected in Australia and Tasmania by Mr. J. J. Walker, R.N., during the voyage of H.M. Ship 'Penguin,' with descriptions of new genera and species"; and he exhibited the specimens comprised in the collection. Mr. J. J. Walker and Colonel Swinhoe made some remarks on the paper.

Mr. Champion also read a paper entitled "An Entomological Excursion to Corsica," in which he described an expedition to the mountains of that island in May and June, 1893, in company with Mr. R. S. Standen, Mr. A. H. Jones, Colonel Yerbury, R.A., Mr. Lemann, Mr. Raine, and others. Mr. Osbert Salvin, Colonel Yerbury, and Colonel Swinhoe took part in the discussion which ensued.

Mr. Edward Saunders communicated a paper entitled "A List of Hemiptera-Heteroptera collected by Mr. Champion in Corsica, with a description of one new species."

Mr. W. F. Kirby read a paper entitled "Notes on *Dorydium westwoodi*, Buchanan White, with observations on the use of the name *Dorydium*."

Mr. Charles B. Taylor communicated a paper entitled "Description of the larva and pupa of *Papilio homerus*, Fab."—H. Goss, *Hon. Secretary*.

*March 14th.* — Colonel CHARLES SWINHOE, M.A., F.L.S., Vice-President, in the chair.

Mr. William Bateson, M.A., Fellow of St. John's College, Cambridge; Mr. H. Caracciolo, of the Port of Spain, Trinidad; Mr. G. C. Dudgeon, of 53, Montague Square, W.; and the Rev. Frank E. Lowe, M.A., of St. Stephen's Vicarage, Guernsey, were elected Fellows of the Society.

Dr. D. Sharp exhibited a collection of White Ants (*Termites*), formed by Mr. G. D. Haviland in Singapore, which comprised about ten or twelve species, of most of which the various forms were obtained. He said that Professor Grassi had recently made observations on the European species, and had brought to light some important particulars; and also that, in the

discussion that had recently been carried on between Mr. Herbert Spencer and Professor Weismann, the former had stated that in his opinion the different forms of social insects were produced by nutrition. Professor Grassi's observations showed this view to be correct, and the specimens now exhibited confirmed one of the most important points in his observations. Dr. Sharp also stated that Mr. Haviland found in one nest eleven neoteinic queens,—that is to say, individuals having the appearance of the queen in some respects, while in others they are still immature; these neoteinic queens were accompanied by kings in a corresponding state.

Mr. Haviland gave an account of the structure of some of the nests, and of the cells of the females, and stated that two of the species of White Ants exhibited certainly grow fungus for their use, as described by Mr. Smeathman, many years ago, in the 'Philosophical Transactions.' Mr. H. Goss remarked that the fact that the different forms of social insects were produced by nutrition was known to Virgil, who referred to it, and to the subject of Parthenogenesis in Bees, in the 'Georgics,' Book iv. Mr. McLachlan, Colonel Swinhoe, Mr. Champion, Mr. Jenner Weir, and Dr. Sharp continued the discussion.

Mr. O. E. Janson exhibited specimens of *Dicranocephalus adamsi*, Pascoe, from Sze-chuen, Western China, and *D. dabryi*, Auz., recently received from the neighbourhood of Moupin, in the same district; he observed that, although the latter had been quoted by Lucas, Bates, and others, as a synonym of *adamsi*, the two species were perfectly distinct; the females of both were unknown to the authors when describing them, and presented a remarkable difference, for whilst in *dabryi* this sex is similar to the male in colour and sculpture, in *adamsi* it is entirely dull black, with the upper surface minutely and densely punctate.

Mr. C. O. Waterhouse exhibited, for Mr. E. A. Waterhouse, a specimen of *Colias edusa*, closely resembling *C. erate*, a Continental species, which was taken on Wimbledon Common; a varied series of *Chrysophanus phlæas*, from Barnes Common; and a series of *Lycæna arion*, from Cornwall.

The Rev. Canon Fowler read a paper entitled "Some new species of *Membracidae*."

Mr. F. Merrifield read a paper entitled "Temperature experiments in 1893, on several species of *Vanessa* and other Lepidoptera." He said that the results tended to confirm Dr. Dixey's conclusions as to the origin of the wing-markings in the *Nymphalidae*, brought out many, presumably, ancestral features, and in some cases were very striking. There was much difference in sensitiveness between the seasonal broods of the same species, even in *V. c-album*, although both broods of that species passed the pupal state in the warmer part of the year.

Dr. F. A. Dixey read a supplementary paper "On Mr. Merrifield's experiments in temperature-variation as bearing on theories of heredity."  
—H. Goss & W. W. FOWLER, *Hon. Secretaries*.

